Amendments to the Claims:

There have been no changes to the claims. This listing of claims has been provided for the Examiner's convenience.

1. – 15. (Cancelled)

16. (Previously Presented) A method for multitone processing an N level digital image to produce an M level digital image wherein M and N have unchanging values and M<N, comprising the steps of:

clustering all of the pixel values of the N level image into M reconstruction levels based on the gray level distribution of the N level image, wherein the clustering produces K clusters of pixel values, and wherein K=M;

repeatedly revising said K clusters of pixel values until error between the N level digital image and the M level digital image is minimized, wherein throughout the repeated revising of said K clusters, the number of clusters K does not change;

applying multilevel error diffusion to the N level digital image using said M reconstruction levels to produce the M level digital image; and

applying said M level digital image to an image output device.

17. (Cancelled)

18. (Previously Presented) The method of claim 16 wherein the first and last levels of the M levels are predetermined.

19. (Previously Presented) The method of claim 16 wherein the N level digital image has multiple channels and K-means clustering and multi-level error diffusion are performed on each of the multiple channels independently.

20. (Previously Presented) The method claimed in claim 16, wherein the N level digital image has multiple channels and K-means clustering and multi-level error diffusion are performed in multi-channel vector space.

21. (Previously Presented) A method for multitone processing an N level digital image to produce an M level digital image wherein M and N have unchanging values and M<N, comprising the steps of:

setting initial values of M cluster centers;

assigning pixels of the N level digital image to said cluster centers to provide assigned pixels;

calculating new values of said cluster centers based upon respective said assigned pixels;

repeating said assigning and calculating until a predetermined stopping condition is reached and, thereby, final values of said cluster centers are defined;

selecting said final values of said cluster centers as reconstruction levels;

applying multilevel error diffusion to the N level digital image using said reconstruction levels to produce the M level digital image; and

applying said M level digital image to an image output device.

22. (Previously Presented) The method of claim 21 wherein said assigning minimizes respective mean squared error.

23. (Previously Presented) The method of claim 21 wherein said stopping condition is a predetermined threshold.

24. (Previously Presented) The method of claim 21 wherein first and last of said reconstruction levels are predetermined.

25. (Previously Presented) The method of claim 21 wherein the N level digital image has multiple channels and said setting, assigning, calculating, repeating, selecting, and applying steps are performed independently on each of said multiple channels.

26. (Previously Presented) The method of claim 21 wherein the N level digital image has multiple channels and said setting, assigning, calculating, repeating, selecting, and applying steps are performed in multi-channel vector space.